App. No. 10/001,279   **BEST AVAILABLE COPY**
Amendment Dated: October 28, 2004
Reply to Office Action of August 13, 2004

REMARKS/ARGUMENTS

Claims 1-20 remain in this application for further review. Claim 9 has been currently

amended to correct a minor typographical error. No other claims are currently amended and no

new matter has been added.

I.   Rejection of Claims 1-5 and 8-20 under 35 U.S.C. 102(b)

Claims 1-5 and 8-20 were rejected under 35 U.S.C. 102(b) as being anticipated by United

States Patent No.5,450,589 issued to Maebayashi et al. ("Maebayashi"). Applicants respectfully

disagree with the rejections and arguments set forth in the Office Action. The Office Action

mainly cites to various portions of the Summary of Maebayashi. However, Maebayashi is

related to a completely different invention than the claims of the present invention and the

citations in the Office Action fail to teach any of the limitations of claims 1-5 and 8-20.

Claims 1, 15 and 20 are independent claims and claims 2-14 and 16-19 depend therefrom,

respectively. Claim 1 recites a method for dynamically modifying an executing heterogeneous

program. Claim 1 recites the step of "creating a modified executable code based on an internal

representation of the component derived from an original executable code associated with the

component." Claim 1 continues by reciting the step of "inserting the modified executable code

into the target system memory." The limitations of claim 1 are not taught or otherwise suggested

by the cited art.

Maebayashi teaches a modification system wherein older versions of a modification are

retrievable when an updating or debugging fails. (Col. 1, lines 50-60). One of the problems in

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the prior art, as set forth by Maebayashi, is that in relatively small-scale data processing systems

firmware is written or stored in advance in a ROM. (Col. 1, lines 31-37). Therefore, the ROM

must be replaced with a new one when the firmware is to be modified or debugged. (Col. 1,

lines 35-37). Also, if the debugging or modification fails, the ROM must then again be replaced

(old versions of a modification cannot be recaptured). (Col. 1, lines 44-50).

In order to remedy these problems, Maebayashi teaches a plurality of storage units that

maintain various versions of modified and unmodified program data. (Col. 1, line 60-col. 3, line

35; col. 4, line 47-col. 5, line 19). These versions are then accessible in case a debugging or

update fails and the user needs to revert to a prior version of the program. (Col. 4, line 64-col. 5,

line 3). Maebayashi is simply teaching storage and retrieval units for various versions of a

program to make updating and debugging more user friendly when a failure occurs. Maebayashi

does not teach a method of modifying an executing heterogeneous program. The Office Action's

misinterpretation of Maebayashi is prevalent though out the various citations to Maebayashi.

In response to the comments set forth in the Office Action with regard to claim 1,

Maebayashi does not even remotely relate to a method for dynamically modifying an executing

heterogeneous program. Also, Maebayashi does not teach "obtaining a system reference to a

target system on which the heterogeneous program is executing." Maebayashi does not mention

an executing heterogeneous program in any manner. Furthermore, as noted in the Office Action,

Maebayashi teaches an "address"; however, the address refers to the data associated with each

block for each version. "[E]ach block for each version contains: an address of each data to be

modified; new data of the address for the version; and old data of the address for a version older

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than the version of the block by one version level...." (Col. 2, lines 64-67). The address for the various versions is stored so that a data comparing unit, before modifying the data in the working program holding unit, can compare the address of the old data and the address of the data in the working program holding unit. (Col. 3, lines 3-7).

Maebayashi does not teach "obtaining a program reference to the heterogeneous program based on the system reference." The portion of Maebayashi that the Office Action cites does not teach this limitation. Again, Maebayashi teaches various storing areas for storing various versions of a program. (Col. 2, line 65-col. 3, line 5). The versions are stored in case an old version of a modification needs to be implemented.

Maebayashi also fails to teach "locating a component of the heterogeneous program based on the program reference, the component residing in a target system memory associated with the target system." As stated above, column 2, line 65 of Maebayashi does not teach this limitation. Maebayashi does not even mention a heterogeneous program let alone locating a component of a heterogeneous program based on a program reference.

Moreover, Maebayashi does not teach "creating a modified executable code based on an internal representation of the component derived from an original executable code associated with the component." Maebayashi teaches as follows:

> each block of the modification data contains first information indicating a version of the program data up to which version the program data held in the working program holding unit is modified with modification data of the block; the working program holding unit contains an area holding second information indication a version of program data which is currently held therein; the working program modifying unit renews the second information indicating the version of program

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data, based on the first information when the program data held in the working
program holding unit is modified with the modification data in each block.

(Col. 3, lines 15-25). (Emphasis added). As is evident from the above block quote,
Maebayashi teaches renewing the information indicating the version of the program.
Maebayashi does not teach creating a modified executable code based on an internal
representation of the component derived from an original executable code associated with the
component. Accordingly, Maebayashi does not anticipate independent claim 1 of the present
invention.

With regard to independent claim 15, claim 15 is an independent claim that specifically
recites "a hierarchical intermediate representation for a heterogeneous program residing in the
system memory." Claim 15 continues by reciting "a transformation process executing in the
processing unit for modifying the hierarchical intermediate representation to create a modified
intermediate representation associated with the heterogeneous program." Claim 15 also recites
"a dynamic modification process executing in the processing unit for modifying an executable
code in a target system memory based on the modified intermediate representation, the
executable code being associated with the heterogeneous program." Claim 20 contains similar
limitations as claim 15. Again, applicants assert that the Office Action misconstrues the present
invention and the cited art. For at least the reasons set forth above in support for claim 1, claims
15 and 20 are also allowable over Maebayashi.

Regarding claims 2-5, 8-14 and 16-19 of the present invention, those claims ultimately
depend from independent claims 1 and 15, respectively. As set forth above, Maebayashi has

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been misconstrued insofar as Maebayashi is specifically teaching a plurality of storage units that

maintain various versions of modified and unmodified program data. Similar to the citations set

forth in rejecting the independent claims, the citations in the Office Action that pertain to the

dependent claims do not point out any teaching or suggestion of the limitations of the dependent

claims. Furthermore, inasmuch as claims 2-5, 8-14 and 16-19 ultimately depend from

independent claims 1 and 15, respectively, the same are also thought to be allowable for at least

those same reasons.

II.   Rejection of Claims 6 and 7 under 35 U.S.C. 103(a)
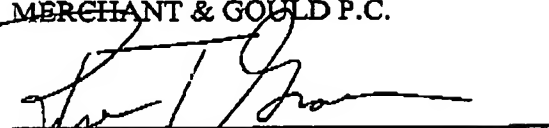
Claims 6 and 7 were rejected under 35 U.S.C 103 as being unpatentable over Maebayashi

in view of U.S. Patent No. 6,463,581 B1 issued to Hammond ("Hammond"). Applicants

respectfully disagree with the rejection. There is no suggestion in any of the references that they

may be modified in the manner suggested. Also, even if for argument purposes such a

modification could be made, the cited references still fail to teach all the limitations of the

claims. Furthermore, the 35 U.S.C. 103 rejection depends from the above stated 35 U.S.C.

102(e) rejection. The claims are clearly allowable under 35 U.S.C. 102(e) and therefore, the 35

U.S.C. 103 rejection should be withdrawn.

In view of the foregoing amendments and remarks, all pending claims are believed to be

allowable and the application is in condition for allowance. Therefore, a Notice of Allowance is

respectfully requested. Should the Examiner have any further issues regarding this application,

the Examiner is requested to contact the undersigned attorney for the applicant at the telephone

number provided below.

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Respectfully submitted,

MERCHANT & GOULD P.C.

Ryan T. Grace
Registration No. 52,956
Direct Dial: 206.342.6258

MERCHANT & GOULD P.C.
P. O. Box 2903
Minneapolis, Minnesota 55402-0903
206.342.6200

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